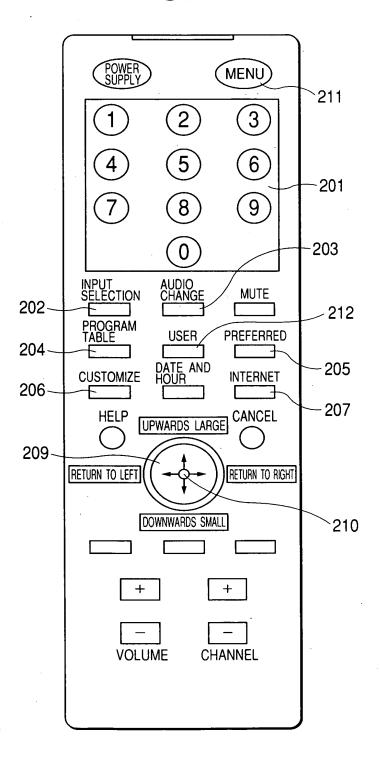
DISPLAY USER Interface ~109c ~109b CPU BUS REMOTE CONTROL MULTI-SCREEN SYNTHESIS CONTROL UNIT HEADPHONE SPEAKER GRAPHICS EXTERNAL OUTPUT U OUTPUT MEMORY attribute detecting Unit DISPLAY AND AUDIO PARAMETER DETECTING UNIT INFORMATION PROCESSING DEVICE GRAPHIC BUS S B ~111c RESOLUTION CONVERSION UNIT 134 GRAPHICS ACCELERATOR 133 RESOLUTION CONVERSION (RESOLUTION CONVERSION U 8 131↓ 110a HISTORY DATABASE STORAGE UNIT VIDEO INTERFACE VIDEO INTERFACE <u>ဒ</u> 115 NTERFACE RAM VIDEO CONTROL IC CARD INTERFACE 122~ 132 $\stackrel{\cdot}{\Box}$ 121 FIG. ADDO VIDEO DATA DECODER AUDIO DECODER VIDEO DECODER PRINTER INTERFACE PRINTER 106 107~ 120 e.g. DIGITAL CAMERA 104 DEMULTIPLEXER PCMCIA INTERFACE DIGITAL TV RECEIVING UNIT WEG2 13 AUDIO AUDIO VIDEO MDEO AUDIO DESCRAMBLER MODEM ~117a 1C → EXTERNAL AV DEVICE IB~ EXTERNAL AV DEVICE INTERNET VIA TELEPHONE LINE -OR CABLE 1 200 IEEE1394 Interface 8 IEEE1394 Interface ; **\(\frac{1}{2}\)** DEMODULATION **TUNER** 117b EXTERNAL AV DEVICE e.g. DVD EXTERNAL AV DEVICE e.g. D-VHS SATELLITE CABLE Ground Wave—

FIG. 2



START

RECOGNITION OF VIEWING AND LISTENING

~S301

- VIEW AND LISTEN TO A CERTAIN INPUT SOURCE (ONE OR MORE) MORE THAN PREDETERMINED TIME
- VIEW AND LISTÉN MORE THAN PREDETERMINED TIME WITH THE SCREEN LAYOUT
- VIEW AND LISTEN MORE THAN PREDETERMINED TIME IN THE AUDIO MODE

ATTRIBUTE EXTRACTION OF INPUT SOURCE

< S302

- GENRE OF PROGRAM (OR GENRE OF CHANNEL)
- · KIND OF MEDIA
- CLASSIFICATION OF APPLICATION
- VIEWING AND LISTENING TIME

DISPLAY PARAMETER EXTRACTION

< S303

- RELATIONSHIP BETWEEN INPUT SOURCE ID AND WINDOW NO.
- DISPLAY POSITION AND DISPLAY SIZE OF EACH WINDOW NO.
- · SUPERPOSITION EFFECT (LAYER RELATIONSHIP)

AUDIO PARAMETER EXTRACTION

S304

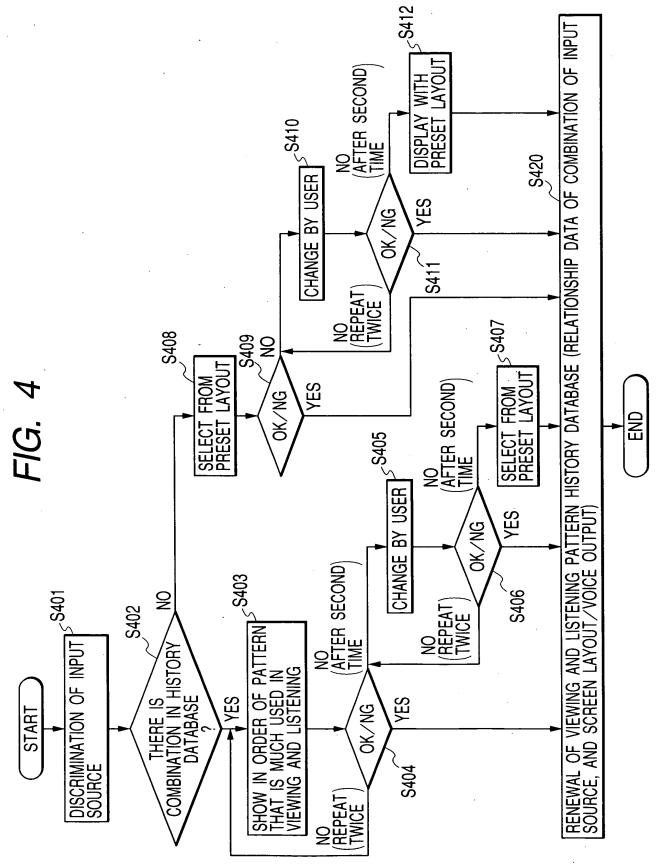
- RELATIONSHIP BETWEEN INPUT SOURCE ID AND OUTPUT CHANNEL
- AUDIO MODE OF EACH OUTPUT CHANNEL

GENERATION OF HISTORY DATABASE

ACCUMULATE AS HISTORICAL DATA, RELATIONSHIP DATA INDICATING THAT VIEWING AND LISTENING WAS EXECUTED FOR EACH INPUT SOURCE ID (OR ITS COMBINATION) BY USING HOW SCREEN LAYOUT (DISPLAY PARAMETER) AND WHICH AUDIO MODE

_≤S305

END



#EEFFF7 TFFFE

INPUT SOURCE ID
MEDIA
(GENRE)
(TITLE)
(CHANNEL)
(THE WHOLE PROGRAM TIME)
START TIME
APPLICATION
RESERVED

FIG. 6

INPUT SOURCE ID
(WINDOW NO.)
WINDOW START ADDRESS
X DIRECTION SIZE
Y DIRECTION SIZE
DISPLAY EFFECT
LAYER
RESERVED

INPUT SOURCE ID
OUTPUT CHANNEL
AUDIO MODE
RESERVED

FIG. 8A

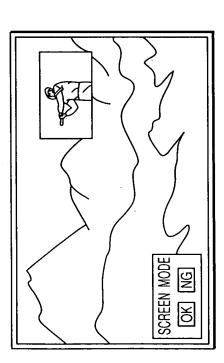


FIG. 8B

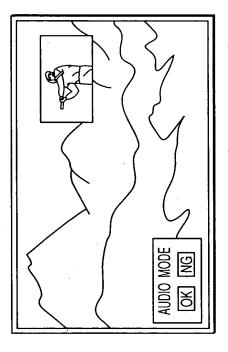
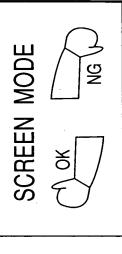


FIG. 9B



SCREEN MODE (:) OK

FIG. 9A

FIG. 10A

SELECTION OF WINDOW

SCREEN CHANGE MENU

ADJUSTMENT OF POSITION

ADJUSTMENT OF SIZE

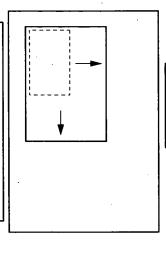
ADJUSTMENT OF OVERLAP ▷

FIG. 10B

ADJUSTMENT OF POSITION

FIG. 10C

ADJUSTMENT OF SIZE



PLEASE ADJUST BY DIRECTION KEY ← OF REMOTE CONTROLLER
PLEASE PUSH DETERMINATION KEY AT THE TIME OF O. K. PLEASE ADJUST BY DIRECTION KEY ← OF REMOTE CONTROLLER
PLEASE PUSH DETERMINATION KEY AT THE TIME OF O. K.

FIG. 11

·								
		OUTPUT 1	OUTPUT 2			DOLBY DIGITAL	DOLBY SURROUND	
MAIN SPEAKER	HEADPHONE	EXTERNAL OUTPUT		MONOPHONIC	STEREO	MULTICHANNEL		
CHANGE OF OUTPUT				CHANGE IN AUDIO MODE				
UDIO CHANGE MENO	ANGE OF OUTPUT STINATION	HANGE IN AUDIO						

 (\`\.	1
-	1 1 1	_

											9720	,
VIEWING AND	LISTENING PATTERN	A	В)	Q	Е	L	В	I		R REPORT RIGHT IN ANOTHER FIGURE STEREO 1 STEREO 2 STEREO 2	
	#2			-	_	1	-		M5		ER RE RIGH IN AI ESTEF	
	#4	1	_	1	-	-		M5	M5		ENTARY IE WSER NEWS NEWS NEWS NISPLAY I LOWER SHOWN RIGHT SHANNEL HANNEL	
AUDIO	#3	ı	ı	1	1	-	M5	M5	¥2		RE=NEWS RE=SPORT RE=DRAMA RE=DRAMA RE=DOCUMENTARY GENRE=MOVIE ERNET BROWSER IAIL ION=CLOCK DISPLAY SPLAY SPLAY OGENRE=WEATHER REP(TON=CLOCK DISPLAY SPLAY ON GENRE=WEATHER REP(TON=CLOCK DISPLAY SPLAY ON GENRE=WEATHER ON GENRE SEN LOWER SIGHT ODE=STEREO ODE=MULTICHANNEL STERE ODE=TWO LANGUAGES	<u>1</u>
	#5	ı	S1	SM	- SM	M5	M5	SM	M5			MODE=STEREC
	#1	M1	M2	M2	M3	M1	M4	M4	M4		ST GENRE GENRE GENRE FEVICE GENRE SMISSION = E-MAII SMISSION = E-MAII SMISSION = E-MAII SMISSION SIGN AT WINDOW AT SCREE MOD KER MOD KER MOD KER MOD	MODI
	\$#	1	١	ı	ı	1	ı	ı	L16		PERAN SCIENT SCI	HONE
YOUI	#4	1	٦	Į.	1	1		L14	L14		AAPPINA APPINA A	HEADP
SCREEN LAYOUT	#3	1		Ţ	1	ı	L11	L13	L13		AAAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	IO CHANNEL=HEADPHONE
SCRE	#5	ı	2	7	ട	L4-1/-2	L10	L12	L12		= DIGIGIO DI CHA	T CHA
	#	17	[1	[]	I	L3	<u>L3</u>	[3	L15			NON-AI OUTPU
TRIBUTE)	\$#	I	i	ı	1	ı	1	1	A2 DATA3	<u>~</u>	「トナナシニニンのドニングリカインジング 単数数数	S1::
(ATTRI	#4	1	ı		1	1	ı	DATA2	DATA2	= MAR	YOUT E	
	£	ı	1	ı	,	١	Ξ	ī	T1	NS 0	SCREEN LAYOUT	
INPUT SOURCE	7	ı	TV2	IAN1	ITN2	ITN2	DATA1	DATA1	DATA1	MEAN	SCREEN LAYOUT AUDIO MODE	
INPU	¥	TV2	T\3	T V4	EXT1	TV3	Ţ	Z	T\			

ACCIA COY LOI COL



FIG. 13

SPORT TV2 DISPLAY PARAMETER L1

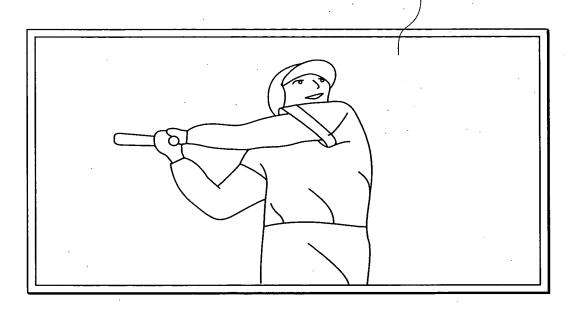
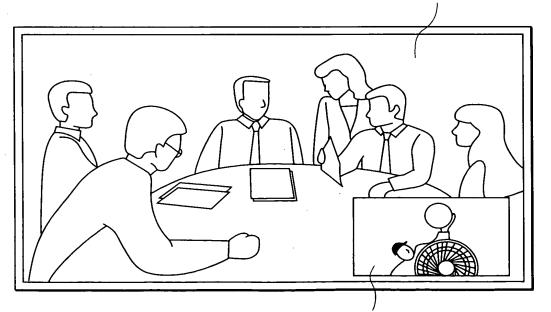


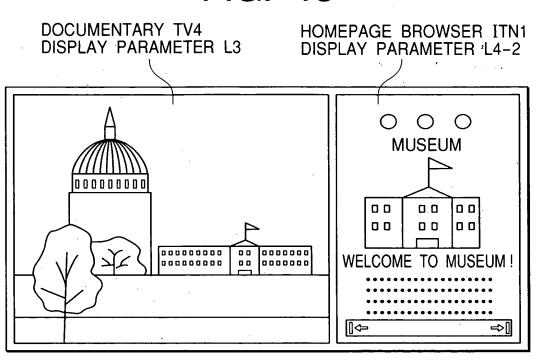
FIG. 14

DRAMA TV3 DISPLAY PARAMETER L1

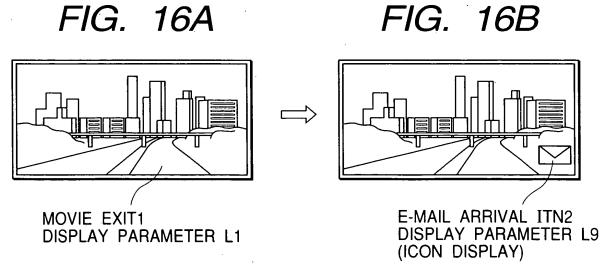


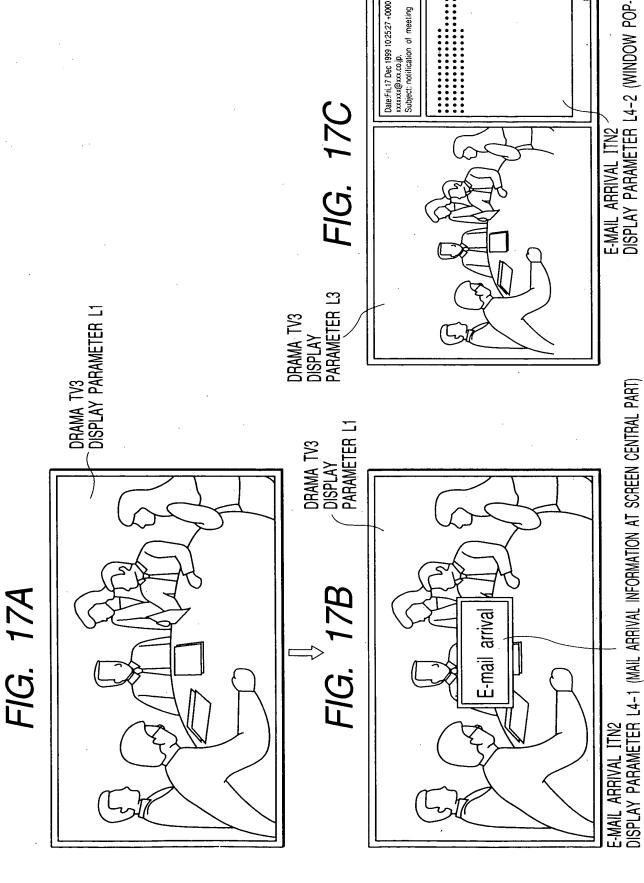
SPORT TV2 DISPLAY PARAMETER L2

FIG. 15

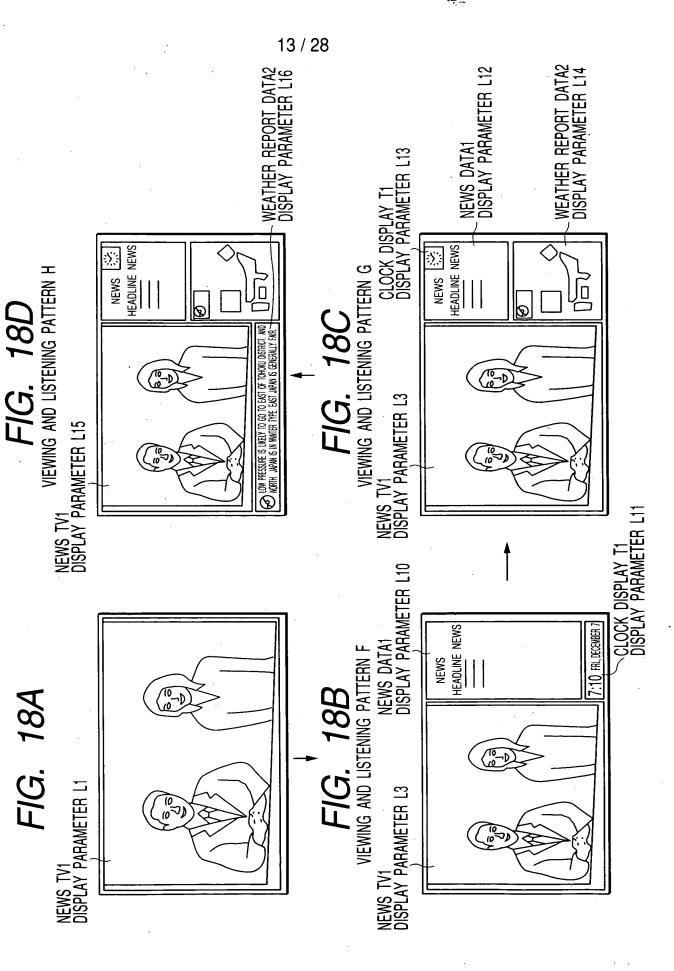


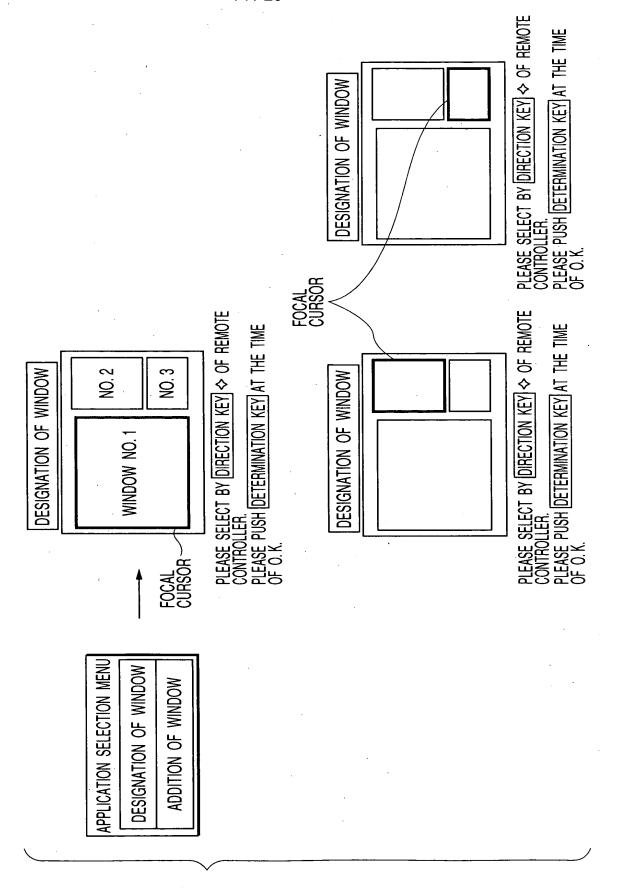


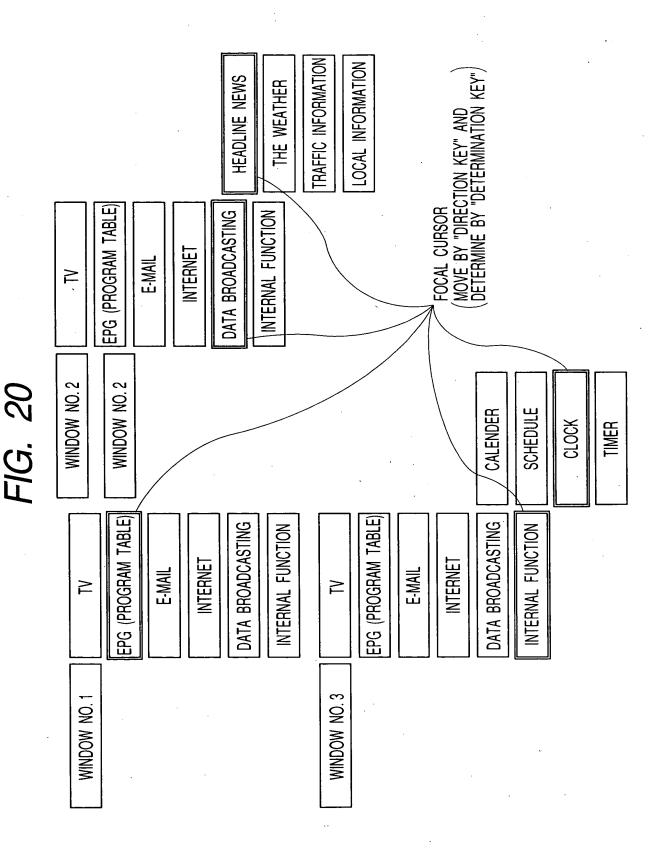




E-MAIL ARRIVAL ITN2 / DISPLAY PARAMETER L4-2 (WINDOW POP-UP)







#1 #2 #3 #4 L1 L2 L3 L4 L1 L2 L3 L4 L5 - - -	TIME ZONE		INPUT	NPUT SOURCE (ATTRIBUTE)	(ATTF	(SIBUTE)	S	SCREEN LAYOUT	LAYOU		VIEWII	VIEWING AND LISTENING) LISTE	ENING	VIEWING AND
MONFRI. TV1 DATA1 T1 DATA2 L1 L2 L3 L4 M3 MONFRI. TV2 DATA1 T1 DATA3 L1 L2 L3 L4 M3 SUNDAY TV3 - - - L5 - - M1 MONFRI. TV2 - - L5 - - M1 WEDNESDAY 4-9 TV3 TV4 - L5 L6 - - M1	TIME DAY OF THE WEEK DAY	AND MONTH	#	#5	#3	#4	 	#5	#3	#4	#	#5	#3	#4	
MONFRI. TV2 DATAI T1 DATA3 L1 L2 L3 L4 L4 SUNDAY TV3 L5	6-7 MONFRI.		TV1	DATA1	Ţ	DATA2		L2	1	L4	M3	S2	M5	M5	А
SUNDAY TV3 - - L5 -	7-8 MONFRI.		TV2	DATA1		DATA3		12		L4		S2	M5	M5	В
MONFRI. TV2 - - L5 - - WEDNESDAY 4-9 TV3 TV4 - L5 L6 -			TV3		ı	-	[5]	1	1		M				O
WEDNESDAY 4-9 TV3 TV4 L5 L6 -	-		TV2		1	I	15	ı	ı	i	M.	_	-	١	O
	1 <	4-9	TV3	TV4	1	I	5	9	ı	ł	M1	S1	i	ı	ш
21-23 TUESDAY 10-12 TV5 L5 M2	1	10-12	TV5	1	ı	1	<u> </u>	ı	1	1	M2	1	ı	ı	ш
21-23 TUESDAY 10-12 TV5 ITN1 L5 L7 M2		10-12	TV5	ITN1		ı	L5	[7]	-	1	M2	M5	-	1	ၒ

FANING OF MARK

T SOURCE TV1: MEDIA = DIGITAL TV BROADCAST GE

DIA = DIGITAL TV BROADCAST GENRE=NEWS Ch=1

MEDIA=DIGITAL IV BROADCAST GENRE=VARIETT OF

TV5:MEDIA=DIGITAL TV BROADCAST GENRE=MOVIE (TN1:MEDIA-INTEDNET ADDITOATION=E-MAII

NI:MEDIA=INIERNE! AFFLICATION=E-MAIL ATA1:MEDIA=DIGITAL DATA TRANSMISSION GENRE=NEW

DATA2: MEDIA = DIGITAL DATA TRANSMISSION GENRE = WEATHER REPORT

WINDOW LAYOUT SHOWN IN ANOTHER FIGURE

M3:OUTPUT CHANNEL=MAIN SPEAKER MODE=MULIICHANNEL STERE M3:OUTPUT CHANNEL=MAIN SPEAKER MODE=TWO LANGUAGES

M5 : NON-AUDIO

OUTPUT CHANNEL=HEADPHONE MODE=STEREO

NEWS TV1 NEWS T1 SCREEN LAYOUT L1 SCREEN LAYOUT L3 AUDIO M3 AUDIO M5 (NON-AUDIO) (MAIN SPEAKER/TWO LANGUAGES) 30 20 20 10

NEWS HEADLINE NEWS

Ø

NEWS DATA1 SCREEN LAYOUT L2 AUDIO S2 (HEADPHONE/TWO LANGUAGES)

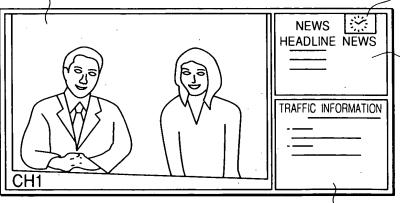
WEATHER REPORT DATA2 SCREEN LAYOUT L4 AUDIO M5 (NON-AUDIO)

FIG. 23



CH8

CLOCK DISPLAY T1 SCREEN LAYOUT L3 **AUDIO M5**



NEWS DATA1 SCREEN LAYOUT L2 AUDIO S2

TRAFFIC INFORMATION DATA3 SCREEN LAYOUT L4 **AUDIO M5**

FIG. 24

VARIETY Ch TV3 SCREEN LAYOUT L5 (WIDE FULL SCREEN) AUDIO M1 (MAIN SPEAKER/STEREO)

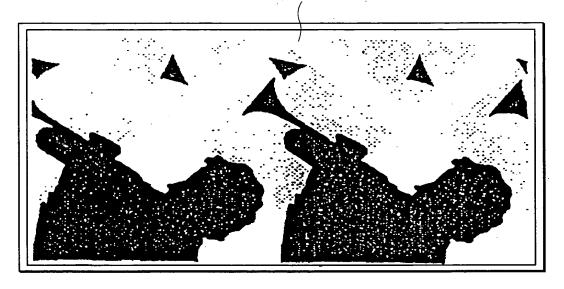
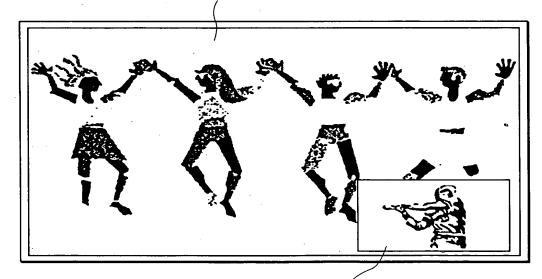


FIG. 25

VARIETY Ch TV3 SCREEN LAYOUT L5 (WIDE FULL SCREEN) AUDIO M1 (MAIN SPEAKER/STEREO)



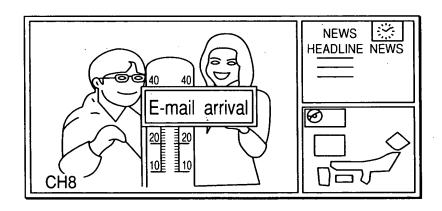
VARIETY Ch TV4
SCREEN LAYOUT L6 (LOWER RIGHT 1/8 SIZE PinP)
AUDIO S1 (HEADPHONE/STEREO)

MOVIE TV5 SCREEN LAYOUT L5 (WIDE FULL SCREEN) AUDIO M2 (MAIN SPEAKER/MULTICHANNEL STEREO)

MOVIE TV5 SCREEN LAYOUT L5 (WIDE FULL SCREEN) AUDIO M2 (MAIN SPEAKER/MULTICHANNEL STEREO)



E-MAIL ARRIVAL ITNÍ SCREEN LAYOUT L7 (ICON DISPLAY) AUDIO M5 (NON-AUDIO)



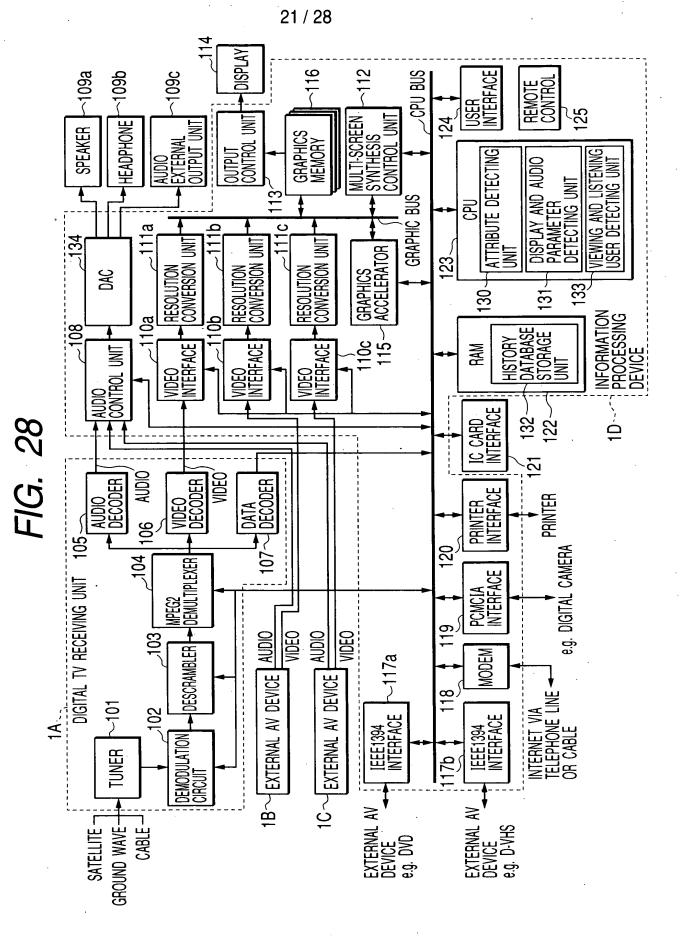
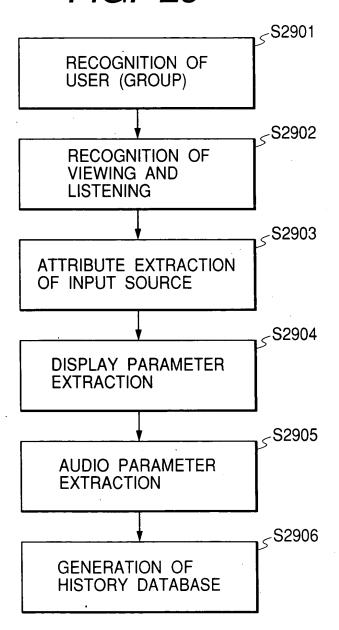
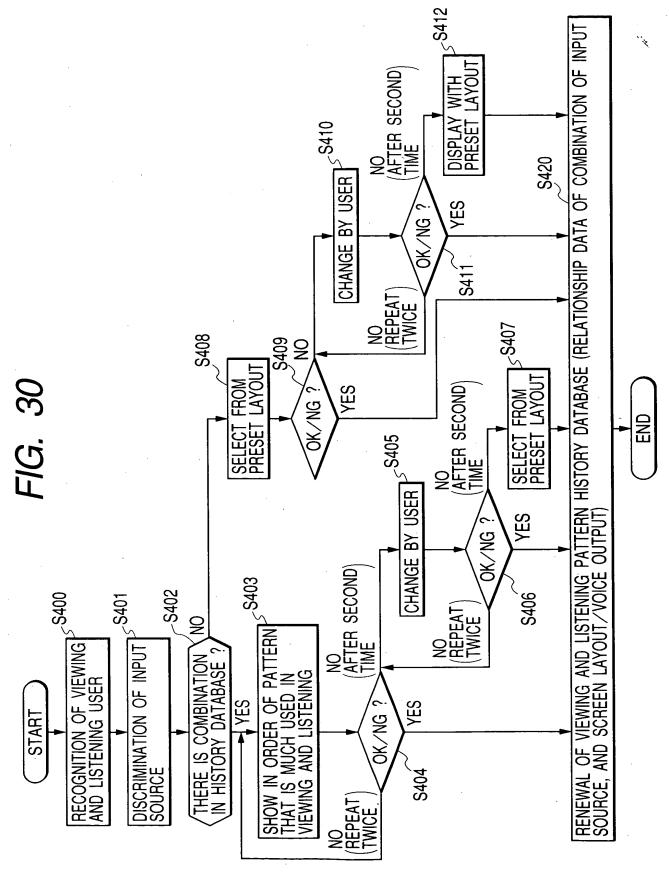
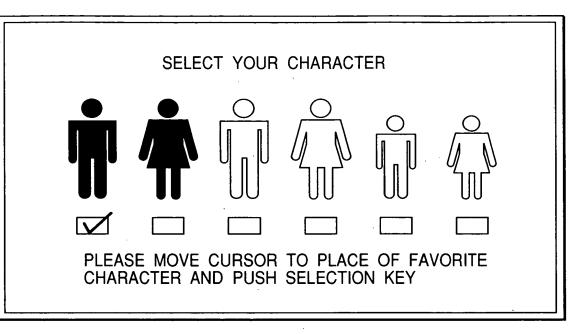


FIG. 29







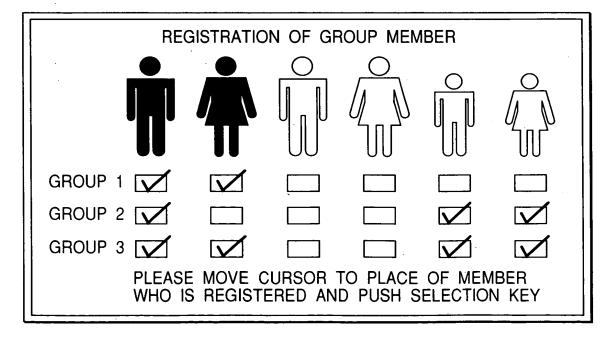
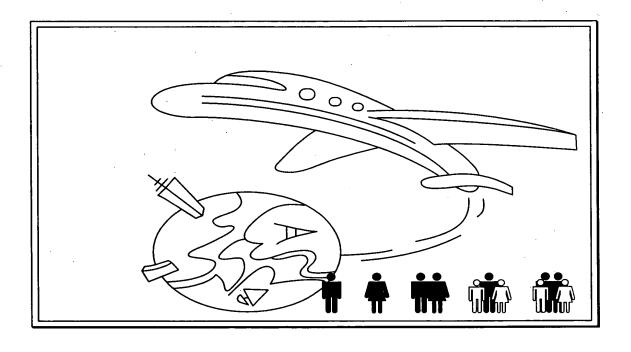


FIG. 33



USER/USER	INPU	T SOU	JRCE (ATTRIB	rribute)		SCREEN LAYOUT	N LA	YOUT				AUDIO			VIEWING AND
GROUP	#1	#5	#3	#4	#2	#	#5	#3	#4	#2	#1	#5	#3	#4	#2	LISTENING PATTERN
SINGLE A	TV2	1	1		ı		1	1	1	I	M1	ı	-	-	-	А
GROUP 1	T\3	TV2	i	ı	-	1	7	1	ı	_	M2	S1	ı	I	I	8
SINGLE A	TV4	ITN		١	1	<u> </u>	L4	1	-	_	M2	M5	ı	ı	ł	S
GROUP 2	TV5	DATA1	ı	1		<u> </u>	L4	ı	1	ı	M1	S1	ı	ı	ı	Q
SINGLE A	EXT1	ITN2	ı	1	1	[1	67	-	1	ı	M1	ı	ı	i	1	ш
SINGLE A	T\3	ITN2	ı	1	1	L1/L3[L4·1/-2	[4-1/-2]	1	i	_	M1	M5	ı	ı	1	L L
GROUP 3	1	DATA1	T1	DATA2	_	<u>L3</u>	L5	9T	[7]	1	M4	M5	M5	M5	1	В

MEANING OF MARK INPUT SOURCE

SCREEN DISPLAY Dinn DISPLAY AT SCREEN LOWER RIGHT

AUDIO MODE

CHANNEL=HEADPHONE MODE=STEREO

SPORT TV2 DISPLAY PARAMETER L1

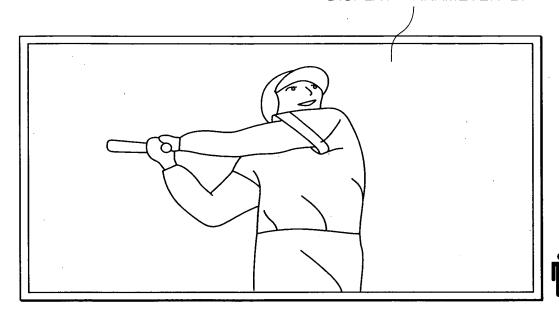
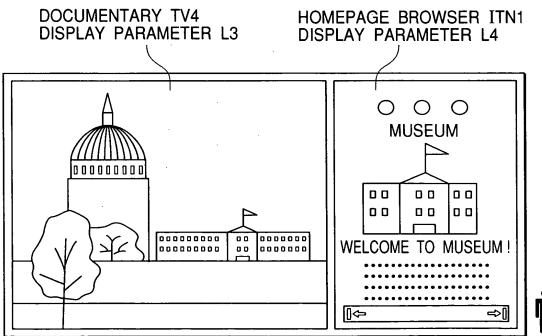
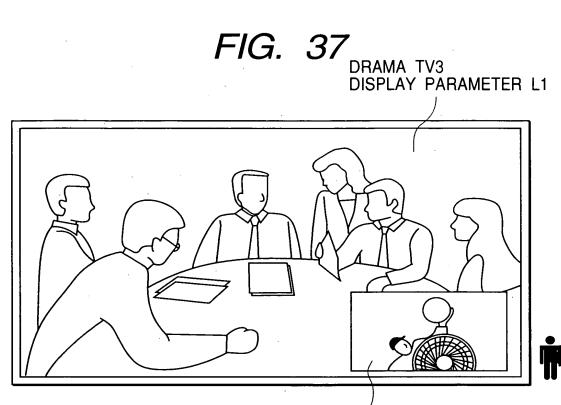


FIG. 36







SPORT TV2 DISPLAY PARAMETER L2



